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Research project

Nearshoring, structure of global value chains and volatility: opportunities for Italy for greater integration with the African continent and Mediterranean countries

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Nearshoring, structure of global value chains and volatility: opportunities for Italy for greater integration with the African continent.

This document discusses the progress made since the allocation of the grant by the Ministry of Foreign Affairs and International Cooperation. The project's first main objective is to study the changes in the structure of global value chains (CGV), with particular attention to nearshoring and the possible effects in terms of output volatility. Secondly, the project focuses on the economic relations between Italy and the African continent, studying to what extent African countries and in particular those bordering the Mediterranean basin can become new strategic partners in light of the conflict with Russia.

In particular, the project answers two research questions:

Considering nearshoring in terms of length, geographical concentration and proximity to final demand, which characteristics of the GVC structure are associated with a reduction in production volatility in Europe?

Which countries specialize in products similar to those that Russia exports to Europe? In the event of a reconfiguration of European import flows to Africa and the Mediterranean region, what position would Italy occupy in this trade network?

In the following, we discuss the progress made on both research questions, which at the initial stage of the project focus on the overview of scientific literature and data sources needed to answer the research questions.

Research question 1 – Input-output analysis

The first research question requires the use of input-output data and methodology, which help to follow all the steps that link the production of finished goods (consumer goods or capital) to the sectors and countries involved in it, both directly and indirectly.

There are now several databases that allow this type of analysis, but we have chosen to use the international input-output tables (inter-country input-output, ICIO) compiled by the OECD because (i) they have the greatest coverage of countries (77) and sectors (45), (ii) they include information for the period 1995-2019 and (iii) they use the ISIC4 international industry classification.

An in-depth study of the scientific literature has also been conducted on the extent to which GVCs are a source of strategic vulnerability, an aspect that has attracted increasing attention in the current debate in light of supply chain problems due to the introduction of measures to counter COVID and, more recently, Russia's invasion of Ukraine.

It is in this perspective that the concept of Nearshoring becomes important in relation to its potential to reduce the volatility of GVC output (e.g., Lalanne 2022, Baldwin et al. 2022). However, our overview of the literature has shown that there is no unequivocally recognized definition – let alone a measure – of

Nearshoring. Nearshoring can refer to the length of the GVCs, their geographical concentration or the proximity of production to final demand.

As a result, we have identified three key measures that will form the cornerstones of our econometric analysis:

1. The length of the GVCs, i.e., the average number of production steps that each input of a GVC requires to be produced.

2. The geographical concentration of imported inputs for the production of each GVC. This measure can be constructed as a Herfindahl-Hirschman Index (HHI) that captures how concentrated are the inputs needed to produce each GVC, following Jimenez et al. (2022).

The geographical proximity - not in terms of the number of production steps - of production with respect to final demand. This approach is based on Nearshoring measures calculated in the previous project co-funded by MAECI (Nearshoring and regionalization of global value chains: implications for the labor market in Europe), i.e., the share of value added in a GVC that is supplied by country-industries in the same region of completion of production.

Once these measures have been calculated with ICIO data, the next steps will involve exploring these measures descriptively, identifying the countries and sectors that have seen the most Nearshoring according to our three definitions. This will allow us to understand whether the three definitions identify similar countries and sectors or whether they are the result of divergent dynamics. After this descriptive analysis we will proceed with the econometric analysis of the hypothesis that, on average, Nearshoring is associated with a reduction in the volatility of the GVC output.

Research question 2 - Analysis with foreign trade data

Although at a less advanced stage than that used for the first research question, we have already identified the data sources needed to answer the second research question. Initially the project considered the use of UNCOMTRADE data but following a careful examination of the characteristics of this data source and other similar sources we preferred to use CEPI-BACII data. This data source is available free of charge and is based on UNCOMTRADE data, which are however harmonized and made coherent on a bilateral level in order to obtain import and export flows on a bilateral level for 200 countries and 5000 products that are consistent with each other.

We are currently assembling the database that covers foreign trade flows between Russia and Europe, making it possible to identify the products for which Europe - and Italy in particular - is heavily dependent on Russia. This will be done by calculating Balassa indices that capture the bilateral revealed comparative advantage between Russia and the European countries. These will in all likelihood concern the energy and food sector, but our analysis will also allow us to identify other products in other sectors.

Subsequently, concerning the products for which Russia is the main supplier for European countries, we will identify the African countries that are in the best position to become the new suppliers and which of them trade particularly closely with Italy.

The last phase of the analysis will see the use of network analysis to study how Italy's position would change within the international trade network if trade relations with Africa and other countries of the Mediterranean basin were to intensify to replace the supply of goods from Russia.

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